Metcalf & Eddy
An Air & Water Technologies Company

May 23, 1997

Ms. Diane Spencer, Project Coordinator
U.S. Environmental Protection Agency, Region 5
Office of Superfund, Remedial & Enforcement Response Branch
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Subject: **Granville Solvents Site Removal Action**
Revised EE/CA Tables

Dear Ms. Spencer:

As agreed in our meeting on Monday, May 19, 1997, we are providing you with revised Tables 4--2 and 4-6 for the Engineering Evaluation/Cost Analysis (EE/CA) for the Treatment of Impacted Soil dated March, 1997. These tables have been modified to eliminate the reference to the injection of treated groundwater which is not proposed in this Removal Action. Please replace the originals with these revised tables.

Based on discussions during our meeting, we are taking the opportunity to revise Section 2.5-Streamlined Risk Evaluation to incorporate additional exposure scenarios not presented in the document. Moreover, we will also incorporate information presented in other reports so that the document provides a more complete history of site conditions. The intention is to allow this document to stand alone without requiring the reader to search for information outside of the document. We anticipate that we will provide this revised section to you at the end of next week.

If you have questions, please contact Michael Raimonde or me at (614) 890-5501.

Respectfully,

METCALF & EDDY OF OHIO, INC.

Gerald R. Myers
Vice President/Project Coordinator

Attachments

cc: E. Pfefferle, TH&F
M. Anastasio, U.S. EPA
F. Myers, OEPA
J. Hickman, Village of Granville
M. Raimonde, M&E

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TABLE 4-2
REMEDIAL ALTERNATIVE EVALUATION SUMMARY
GRANVILLE SOLVENTS Site SOURCE AREA
GRANVILLE, OHIO

ALTERNATIVE	NCP EVALUATION CRITERIA		
	EFFECTIVENESS	IMPLEMENTABILITY	ESTIMATED COSTS
2 Remove Soil with Total VOCs >5,000 µg/kg by Excavation and Off-Site Disposal Description • Remove soils with total VOCs >5,000 µg/kg • Enhanced groundwater removal with the addition of GSS-EW3[1] • Low rate pumping of 40 gpm for 5 years • Groundwater monitoring at current level for 5 years, reduced level for 10 years	*Overall Protection of Human Health and the Environment*: • Soil excavation and disposal of soils exceeding 5,000 µg/kg total VOCs will provide a high degree of overall protection of human health and the environment. Soil excavation and disposal would reduce the quantity of soil contaminants migrating into the Site groundwater; permanently remove soil contaminants from the Site soil; comply with ARARs by satisfying the AOC requirements; and be protective of the community, Site workers, and the environment during implementation through the implementation of effective Site control measures. • Enhanced extraction and treatment of the Site groundwater at a high flow rate (about 300 gpm) would be required over an estimated 5-year period and maintenance pumping at a low flow rate (about 40 gpm) would continue an additional 5 years[1]. *Compliance with ARARs and Other Criteria, Advisories, and Guidance*: • Soil excavation and disposal is a proven technology and would remove and dispose approximately 8,000 cubic yards of soils containing contaminants at levels above 5,000 µg/kg total VOCs. • Soil excavation and disposal combined with continued extraction and treatment of the Site groundwater complies with the AOC requirements that soils be treated ... "to levels which assure, to the maximum extent practicable, that no groundwater beneath the soils becomes contaminated above groundwater no further action levels." *Long-Term Effectiveness and Permanence*: • Soil excavation and disposal of soils exceeding 5,000 µg/kg total VOCs will be effective in reducing the migration of soil contaminants into the Site groundwater. • Natural leaching and degradation of contaminants in the soils outside of this area will reduce soil contaminant levels. These contaminants will be removed through continued operation of the groundwater treatment system. *Reduction of Toxicity, Mobility, and Volume Through Treatment*: • Soil excavation and disposal would remove all soils containing volatile organic contaminants at concentrations above 5,000 µg/kg. • Soil excavation and disposal would reduce the toxicity, mobility, and volume of the volatile organic contaminants in the Site soils (by their removal). • Soil excavation and disposal from the Site represents an irreversible process for the Site, but transport and disposal at a regulated, permitted hazardous waste landfill overall reduces toxicity and mobility but not volume. • Residual soil contaminants would degrade or leach into the groundwater and be captured by the groundwater treatment system. This will result in the elimination of soil contaminant toxicity, mobility, and volume through treatment. *Short-Term Effectiveness*: • Risk to the nearby residents resulting from the soil removal and disposal would be minimized by the implementation of effective Site controls. • Impacts to Site workers during implementation of this remedial action would be minimized by ensuring that proper personal protective equipment is provided and used. • The implementation of this alternative is not expected to impose any measurable environmental impacts. • The soil excavation and disposal alternative could be effectively implemented within 6 to 9 months of on-Site activity. • The treatment of residual soil contaminants not removed would occur through continued operation of the groundwater treatment system. The estimated time to reduce residual soil contaminant concentrations to levels which are protective of groundwater is 10 years.	*Technical Feasibility*: • Soil excavation and removal is a technically feasible but impractical, inasmuch as nonconventional construction techniques would be utilized for its implementation. All proposed groundwater extraction and treatment technologies have been demonstrated as technically feasible. *Administrative Feasibility*: • The implementation of this alternative is considered administratively feasible. But Site controls to prevent off-Site dispersion of airborne contaminants would be needed. *Availability of Services and Materials*: • Conventional construction equipment and adequate disposal Sites, along with the personnel required to operate it, are readily available. • There are no foreseen problems associated with obtaining the services, materials, equipment, and disposal Sites necessary to implement this alternative. *State Acceptance*: • State acceptance of this alternative is considered likely based on its anticipated effectiveness, compliance with ARARs, and anticipated overall protection of human health and the environment. *Community Acceptance*: • Community acceptance of this alternative is considered likely based on its anticipated effectiveness, compliance with ARARs, and anticipated overall protection of human health and the environment. Truck traffic to and from the Site could be a community consideration.	Direct Capital Cost: Soil - $4,529,735 Groundwater - $75,900 Indirect Capital Cost: Soil - $450,000 Groundwater - $13,543 Annual O&M Cost: Soil - None Groundwater - $70,000 (years 0-5) $31,000 (years 6-10) O&M Net Present Worth Cost: • Enhanced groundwater pumping - $497,666 • Groundwater monitoring - $977,487 Total Net Present Worth: $6,464,898

[1] Based on groundwater modeling results.

TABLE 4-6
COMPARISON OF COSTS FOR ALTERNATIVES 1 THROUGH 5

Alternative Number	Soil Remedy	Soil Remedy Estimated Direct Capital Cost	Soil Remedy Estimated Indirect Capital Cost	Soil Remedy Estimated Annual O&M Cost	Soil Remedy Estimated Net Present Worth Cost	Groundwater Remedy	Groundwater Remedy Estimated Direct Capital Cost	Groundwater Remedy Estimated Indirect Capital Cost	Groundwater Remedy Estimated Annual O&M Cost	Groundwater Remedy Estimated Net Present Worth Cost	Groundwater Monitoring Scenario	Estimated Net Present Worth Cost of Groundwater Monitoring	TOTAL NET PRESENT WORTH COST
1	No Action	None	None	None	None	Existing system	None	None	$70,000 (years 0-3); $31,000 (years 4-20)	$638,394	Monitor for 16 years at current level and 15 years at reduced level	$1,761,833	$2,400,267
2	Soil Removal by Excavation and Disposal	$4,529,735	$460,000	None	$4,989,735	Install EW-3 as new extraction well and operate EW-3 for 5 years at 300 ppm then maintenance pump from EW-3 for 5 more years at 40 gpm.	$75,900	$13,543	$70,000 (years 0-5) $31,000 (years 6-10)	$497,666	Monitor for 5 years at current level and 10 years at reduced level.	$977,497	$6,464,898
3	*In-Situ* Mixing/Hot Gas Vaporization of Soil Areas	$1,454,578	$167,771	None	$1,622,349	Install EW-3 as new extraction well and operate EW-3 for 5 years at 300 ppm then maintenance pump from EW-3 for 5 more years at 40 gpm.	$75,900	$13,543	$70,000 (years 0-5) $31,000 (years 6-10)	$497,666	Monitor for 5 years at current level and 10 years at reduced level.	$977,497	$3,097,512
4	Treatment of Soils Via Pneumatic Fracturing and Soil Vapor Extraction	$306,728	$118,062	$128,340	$981,435 (based on 5 years of O&M costs)	Install EW-3 as new extraction well and operate EW-3 for 5 years at 300 ppm then maintenance pump from EW-3 for 5 more years at 40 gpm.	$75,900	$13,543	$70,000 (years 0-5) $31,000 (years 6-10)	$497,666	Monitor for 5 years at current level and 10 years at reduced level.	$977,497	$2,456,598
5	Treatment of Soils Via Thermally-Enhanced Soil Vapor Extraction (Shell Process)	$1,500,000 to $2,000,000	$140,000 to $180,000	None	$1,640,000 to $2,180,000	Install EW-3 as new extraction well and operate EW-3 for 5 years at 300 ppm then maintenance pump from EW-3 for 5 more years at 40 gpm.	$75,900	$13,543	$70,000 (years 0-5) $31,000 (years 6-10)	$497,666	Monitor for 5 years at current level and 10 years at reduced level.	$977,497	$3,115,163 to $3,655,163